



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Northwest Region  
7600 Sand Point Way N.E., Bldg. 1  
Seattle, WA 98115

Refer to:  
2002/00897

January 13, 2003

Mr. Jeff Blackwood  
Forest Supervisor  
Umatilla National Forest  
2517 SW Hailey Ave.  
Pendleton, OR 97801

Re: Endangered Species Act Formal and Informal Section 7 Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation for the Tower Fire Recovery Projects, Umatilla National Forest, Grant and Umatilla County, Oregon.

Dear Mr. Blackwood:

Enclosed is a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act (ESA) that addresses the proposed Tower Fire Recovery Projects, Grant County, Oregon. NOAA Fisheries concludes in this Opinion that the proposed action is not likely to jeopardize Middle Columbia River (MCR) steelhead (*Onchorynchus mykiss*). This Opinion includes reasonable and prudent measures with terms and conditions that are necessary and appropriate to minimize the potential for incidental take associated with this project.

This Opinion also serves as consultation on essential fish habitat (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation Management Act and implementing regulations at 50 CFR Part 600. The North Fork John Day River subbasin has been designated as EFH for chinook salmon (*Onchorynchus tshawytscha*).

If you have any questions regarding this consultation please contact Eric Murray of my staff in the Oregon Habitat Branch, at 541.975.1835 ext. 222.

Sincerely,

*Michael R. Crouse*  
f.i.

D. Robert Lohn  
Regional Administrator

cc: Katherine Ramsey, UNF  
Anne Hathorn, USFWS  
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Dorthy Mason, BLM



Endangered Species Act - Section 7 Consultation  
&  
Magnuson-Stevens Act  
Essential Fish Habitat Consultation

BIOLOGICAL OPINION

Tower Fire Recovery Projects  
Cable Creek, North Fork John Day, Big Creek, Hidaway Creek Watersheds  
John Day River Basin, Grant and Umatilla Counties, Oregon

Action Agency: Forest Service

Consultation  
Conducted By: NOAA Fisheries,  
Northwest Region

Date Issued: January 13, 2003

Issued by: *for Michael R. Crouse*  
D. Robert Lohn  
Regional Administrator

Refer to: 2002/00897

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## 1. ENDANGERED SPECIES ACT

### 1.1 Background

The National Marine Fisheries Service (NOAA Fisheries) received a letter and an attached biological assessment (BA) on July 23, 2002, from the Umatilla National Forest (UNF) requesting formal consultation on the effects of Tower Fire Environmental Impact Statements Projects on Middle Columbia River (MCR) steelhead (*Oncorhynchus mykiss*). These proposed projects will be conducted in the North Fork John Day River (NFJDR) subbasin, located in Grant and Umatilla Counties, Oregon.

The Tower Fire ignited during a lightning storm on August 13, 1996. Heavy fuel conditions, steep terrain, and strong winds following the storm resulted in unusually severe fire behavior. Approximately 50,800 acres burned, of which 46,300 were located on the UNF. The fire burned in a mosaic pattern, with burn intensities ranging from low intensity underburning to high intensity stand replacement fire. Many stands in the area suffered complete mortality and some streams experienced fish kills due to the severe intensity of the fire.

In the fall of 1996, the UNF began implementing emergency rehabilitation projects in the Tower Fire area. In 1997, the Tower Fire Ecosystem Analysis was completed and the Hairy Hazard Tree Categorical Exclusion and the Big Tower Salvage and Revegetation Projects were begun. These projects were designed to remove hazard trees from roads and salvage any trees killed by the fire that still had monetary value. A lawsuit was filed in Federal District Court against Big Tower Salvage and Revegetation Project. The Federal District Court upheld the project decision and the timber sales associated with this project began. The District Court's decision was appealed and the Ninth Circuit Court of Appeals overturned the decision on November 5, 1998, and ordered the UNF to halt activities associated with these projects (USDA Forest Service 2001). The court instructed the UNF to prepare an Environmental Impact Statement (EIS) for any further projects within the entire Tower Fire area. The timber sales associated with this project were halted. At the time of the Court's decision, 19 million board feet of the 26 million board feet of timber sold had been harvested and removed.

The UNF completed an EIS for further activities to be conducted in the Tower Fire area in November of 1999. On August 8, 2001, personnel from the NOAA Fisheries and the UNF visited sites in the Tower Fire Area to view current environmental conditions and assess the potential impacts on MCR steelhead these projects may have. During the site visit it became apparent that plans for some of the low water crossings and instream habitat improvements had not been finalized. On August 20, 2001, NOAA Fisheries contacted the UNF by electronic mail to inform them that the formal consultation process could not begin until project plans were finalized and an updated BA received. On September 20, 2002, the UNF requested to review a draft of this biological opinion. On October 24, 2002, NOAA Fisheries provided a draft biological opinion for the UNF to review, and they responded on December 13, 2002, with comments.

The activities proposed in the Tower Ecosystem Restoration Projects (TERP) include: (1) Planting projects, (2) Roundaway Off-Highway Vehicle (OHV) Trail relocation, (3) slope stabilization, (4) hazard tree removal, (5) non-commercial thinning, (6) fencing, (7) road repair, (8) road obliteration/decommissioning, (9) fish habitat improvement, (10) soil compaction reduction, (11) big game forage enhancement, (12) recreation site rehabilitation, (13) fuel reduction and wood fiber salvage, (14) commercial thinning, and (15) herbicide application.

The MCR steelhead was listed under the ESA on March 25, 1999 (64 FR 14517). Protective regulations were issued for MCR steelhead under section 4(d) of the ESA on July 10, 2000 (65 FR 42422).

The objective of this Opinion is to determine whether implementing the activities included in the TERP are likely to jeopardize the continued existence of MCR steelhead.

## **1.2 Proposed Action**

There are several types of activities associated with the TERP. The overall purpose of this project is to enhance long-term recovery of resources adversely affected by the Tower Fire, salvage some trees that died during the fire, and reduce the risk of future catastrophic wildfires. The proposed activities range from tree salvage to fish habitat improvement. The planting projects, hazard tree removal, non-commercial thinning and fencing activities, road obliteration/decommissioning, soil compaction reduction, big game forage enhancement, recreation site rehabilitation, salvage harvest and fuel reduction, commercial thinning, and herbicide application have been determined to be “not likely to adversely affect” (NLAA) MCR steelhead by the UNF. The following projects have been determined to be “likely to adversely affect” (LAA) MCR steelhead: Roundaway Trail, road repair, fish habitat improvement, and slope stabilization.

This Opinion will analyze in detail those projects that the UNF have determined to be LAA MCR steelhead. NOAA Fisheries does not concur with the UNF’s NLAA determination for salvage harvest and commercial thinning activities. In this Opinion, those two activities were considered to be LAA MCR steelhead, and the effects of those activities were also analyzed in detail. In addition, this Opinion will serve as NOAA Fisheries’ concurrence on the remaining NLAA activities included in this consultation. Rationale for NOAA Fisheries’ concurrence can be found in section 1.5.1 of this Opinion. A brief description of the TERP activities follows.

### Planting Projects.

Approximately 141 miles of stream riparian areas burned during the fire. Although large woody debris levels in the streams have returned to desired levels, adequate levels of riparian vegetation do not exist. This project proposes to plant shrubs, hardwoods and conifers in 1,319 acres of

Riparian Habitat Conservation Areas<sup>1</sup> (RHCAs) burned by the fire. Increased vegetation in these areas will result in increased stream shading, thereby leading to decreased stream temperatures. In addition, well established vegetation in riparian areas provides a means by which mobilized sediment can be trapped before it reaches stream courses. A list of proposed planting sites can be found on page 70 of the BA.

Reforestation will occur in many of the upland sites damaged by the fire. A total of 10,285 acres will be planted with coniferous seedlings. The loss of vegetation at these sites has resulted in some degree of surface and rill erosion, increasing sediment loads to local streams. The geology of some of these burned areas make them prone to mass erosion or landslides. Revegetation will decrease sediment levels from rill or overland flow erosion and decrease the chance of landslides occurring.

Upland cutbanks adjacent to roads and trails have exhibited increased instability since the fire destroyed vegetative cover. Seeding of steep slopes along cutbank areas with grass will be done to speed the establishment of soil-holding rooted vegetation on areas where bare soil has been exposed. Banks that are actively eroding will be planted with shrubs to stabilize the soil. These activities should lead to decreased sediment reaching streams.

#### Hazard Tree Removal.

Trees along many roads within the Pearson Recreational Residence Tract, the Winom-Frazier OHV Complex, and Winom Campground have died because of the fire. They now pose a danger to recreationists and travelers. Trees that pose a hazard will be removed in a commercial operation generating approximately 1.5 million board feet (MMBF) of wood products. Cutting of hazard trees will occur in some RHCAs, but trees cut in these areas will be left on site. Most of the trees removal during this operation will be done from the roadside, however, a small amount of off-road travel by tractors or rubber-tired skidders will be necessary. The total acreage of hazard tree removal areas in each sub-watershed is provided on 74 of the BA.

#### Non-Commercial Thinning.

One hundred and eighty acres of forested uplands will be thinned in a non-commercial operation to improve stand vigor and decrease fuel loads. Trees, ranging from one to seven inches, will be felled with chainsaws and left on site. No heavy machinery will be used, soil disturbance will be minimal, and no thinning will occur in RHCAs. Non-commercial thinning will occur in the North Fork John Day River (NFJDR) watershed.

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<sup>1</sup>Riparian Habitat Conservation Area (RHCA) - Portions of watersheds where riparian dependent resources receive primary emphasis, and management activities are subject to specific standards and guidelines. RHCAs include traditional riparian corridors, wetlands, intermittent headwater streams, and other areas where proper ecological functioning is crucial to maintenance of the stream's water, sediment, woody debris and nutrient delivery systems. Standard buffer widths have been identified to protect these resource values (USDA and USDI 1995).

### Fencing

Two wetland areas, Long Meadow and Round Meadow, will be fenced to protect sensitive vegetation from livestock. A New Zealand fence, enclosing 45 acres, will be constructed at the Round Meadow site. Materials will be carried to the site by an all terrain vehicle (ATV). The fence on the east side of the meadow will be in the RHCA of South Fork Cable Creek. A designated stream crossing for the ATVs will be necessary. Construction activities for the fence will not result in significant ground disturbance at the site. At the Long Meadow site, an electric fence will be installed, enclosing 9 acres. The fence will be constructed 50 feet from one streambank and 100 feet from the other, enclosing a large area of the RHCA. The only ground disturbing activity associated with this project will be the installation of posts for the fence.

Three spring-fed wet meadows will be protected with buck and pole fencing to improve wetland habitat and provide a water source for wildlife. The fences will sit on the ground, so no ground disturbing activities are required for this project.

### Road Repair.

Sediment resulting from the increases in post-fire erosion and instability due to the loss of the upland vegetation has compounded the sediment producing effects of roads by filling road drainage structures and forcing surface water to flow down the roadbed itself. Drainage on public and administrative Forest Service roads needs to be improved and conditions on roads that may result in roadbed failure needs to be corrected. The obliteration or decommissioning of 39.5 miles of closed Forest Service roads is planned for this project.

Repairing drainage on these roads will involve the replacement of several culverts, removal of sediment that has collected above and below these culverts, construction of water bars and drainage dips, and armoring of ditch lines. Two crossings of Oriental Creek will be improved by replacing culverts with open bottom arches or bridges on Forest Road 5506 and 5507. These activities will require instream work with heavy machinery and will result in increased sediment loads to streams in the short-term. A detailed description of the activities and protective measures can be found in the BA for this project.

### Road Obliteration/ Decommissioning.

The UNF proposes to obliterate or decommission 27.2 miles of closed roads and decommission 6.4 miles of closed roads located in the various watersheds in the action area. The site-specific characteristics of each site will determine whether decommissioning or obliteration will occur. Decommissioning will involve removing ditch relief drainage structures, water barring the road, and allowing natural revegetation. Removal of ditch relief drainage structures is not expected to generate sediment that could reach streams. Obliteration will be accomplished by one or more of the following: Ripping of roadbed with a tractor to reduce soil compaction, seeding, creating water bars in the roadbed, and/or recontouring of slopes to mimic the natural landform. Some portions of the roads to be decommissioned are located in RHCAs. Most roads located in RHCAs will be decommissioned rather than obliterated because recontouring, requiring large-scale disturbance of soil, is not necessary. This will also prevent large amounts of sediment from

entering streams. Page 111 of the BA provides the location and mileages of proposed road obliteration.

To prevent the mobilization of soil and the possible entry of sediment into streams, slash will be dragged across obliterated roads, seeding will occur to stabilize disturbed soils, and activities will cease when road surfaces become saturated. In the long term, road obliteration and decommissioning will reduce sediment delivery to stream channels.

#### Fish Habitat Improvement.

In order to improve fish passage on several creeks in the action area, the UNF plans to replace or improve conditions at several stream crossings. Four culverts will be replaced on Forest Road 55 and 5506 where they cross Texas Bar Creek, one culvert on Forest road 5448 will be replaced, and two sites where Forest Road 52 crosses South Fork Cable Creek and Winom Creek will be improved. Depending on the conditions at each site, the crossings will be improved by installing new culverts at the proper gradient, replacing old culverts with bottomless arches, or constructing step weirs to facilitate fish entry into the culverts. Regardless of the method used to improve the crossings, heavy machinery will need to operate instream and a pulse of sediment will be generated from the construction activities. Any instream work required for this project will be conducted during the Oregon Department of Fish and Wildlife (ODFW) in-water work window for the area (July 15 - August 15). Improvement of the crossings will allow fish passage at each site and improve access to habitat located upstream of the crossing.

#### Slope Stabilization.

Reductions in vegetation due to the fire have exposed bare soils in some areas and increased the possibility of mass erosion. A landslide in the vicinity of the Texas Bar has resulted in the re-routing of Texas Bar Creek into an ash bank that is presently eroding. Re-routing the channel away from the ash bank will result in a decrease of sediment delivered to Texas Bar Creek and the NFJDR. The UNF plans to move the channel of the creek approximately 40 feet north through the landslide debris closer to the location of the original channel. An excavator will be used to remove approximately 2,000 cubic yards of material to construct the new channel. This material will be stored on the landslide area then be used to fill the old channel. Hazard trees in the construction area will be removed and a stream crossing for machinery and vehicles will need to be established. All instream work will occur during the period from July 15 to Aug 15, the time of lowest flows in the creek. Limiting construction activities to this time period will minimize the amount of sediment introduced into the water column. Planting of 10 acres of trees and shrubs in the landslide area will occur when the channel rerouting is complete.

#### Soil Compaction Reduction.

Overland flows resulting in erosion and rilling appear to have intensified in areas where previous logging and road building activities have led to compacted soil conditions. Soil compaction reduces the infiltration of surface water and inhibits root growth, resulting in higher delivery of sediment to local streams. Subsoiling will occur in approximately 25 acres of existing landings, major skid trails, and temporary roads associated with past timber operations. Map III-7 of the BA shows the locations proposed for subsoiling. A tractor with subsoiling equipment will be



used to break up heavily compacted soils to improve infiltration, reduce overland flow, and improve establishment of vegetation. Subsoiled areas will be planted with native or non-persistent exotic grasses and trees to quickly establish forest cover. No subsoiling will occur in RHCA's.

#### Big Game Forage Enhancement.

A number of the riparian areas occurring in the Tower Fire area seem to be recovering, but a concern remains that overbrowsing by ungulates could slow the establishment of a healthy riparian plant community. Enhancement of big game forage, through the use of prescribed fire, along the northern and western boundaries of the fire is planned to reduce browsing pressure on the recovering riparian areas. Prescribed burning is planned on 900 acres near the NFJDR to stimulate herbaceous vegetation and improve forage quality. The fire will be lit by hand outside of RHCA's and allowed to back into these areas. However, because Forest Road 5506 runs parallel and adjacent to the RHCA of the NFJDR and the fire will be ignited on the opposite side of the road, the road will act as a fire break. As a result, the actual burning that will occur in riparian areas is expected to be very minimal. The burn is planned to be low intensity, primarily burning grasses and leaf litter in a mosaic pattern, leaving 95% of the trees in the area unharmed. The UNF estimates that approximately 70% of needle litter and 40-70% of dead grass will be removed by the burn.

#### Recreation Site Rehabilitation.

A field inventory conducted by the UNF in 2000 indicated that numerous dispersed campsites, trailheads, and trails may contribute sediment to local streams due to the lack of vegetative cover resulting from the fire. To improve conditions at these sites, the following activities will occur: Felling of hazard trees, removal of charred logs, surfacing with gravel, and defining site areas with boulders. All felled trees will remain on site. In addition, the Pearson Guard Station outhouse and water system will be reconstructed. The pit toilet at this site will be replaced with a vault toilet and portions of the pipe for the water system will be replaced. A vault toilet at the Oriental Creek Campsite damaged by the fire and subsequent floods will also be replaced.

#### Roundaway OHV Trail.

The existing Roundaway Trail crosses above a landslide along Hidaway Creek, a tributary of Camas Creek. Previously, the trail was primarily used by motorcycles but the lack of vegetation due to the fire has reduced the amount of vegetation and made the trail more accessible to 4-wheel ATVs. The UNF plans to relocate the trail to more gentle terrain to provide a safer passage route for ATVs. The new trail will be 6.5 miles long, with 4.5 miles occurring on closed roads, 0.75 miles occurring on gentle ridgelines or scab areas, and 1.25 miles occurring on old fire lines and skid trails. The trail will require removal of trees and shrubs located in 81% of the trailbed limits, and the remaining portion will require some outslipping and waterbarring to improve drainage conditions. The installation of two bridges, one over Hidaway Creek and one over Neeves Creek will be required to complete the trail. The installation of each bridge will require approximately one day of instream work, during which time some sediment mobilization will occur. Instream work will occur during the July 15 to August 15 in-water work window.

These crossings are the only areas where the trail will be located in RHCAs. The majority of the trail will be located far from streams.

#### Fuel Reduction and Salvage Harvest.

The large number of standing dead trees resulting from the fire will greatly increase future fuel loads as they fall to the ground. Dead trees will be harvested in 1,526 acres of area burned by the fire. Harvest of trees will occur with harvester/ forwarder or with helicopter in areas with steep slope or sensitive soils. No harvest of trees in RHCAs will occur. To access the harvest units, approximately 1.5 miles of temporary roads will be constructed and 1.8 miles of abandoned roads will be reopened. Some areas of the temporary road or reopened road will enter RHCAs and cross streams. The timber harvest units will be treated with prescribed fire after trees are removed. The burn plan for the areas is designed to reduce fine and course fuels by 25-50% while limiting exposed mineral soil to 10% or less. Maps III-9 and III-10 in the BA show the locations of proposed harvest and treatment units.

#### Commercial Thinning.

A commercial thinning operation is planned for some of the fire area where low tree mortality occurred and stocking and fuel levels are still high. Harvest of trees by harvester/forwarder or helicopter will occur in 598 acres and logs will be fully suspended during yarding to prevent damage to soils. No harvests of trees will occur in RHCAs. Construction of some temporary roads will be necessary for this operation but the length of these roads will be limited to approximately 1,000 feet. The roads will be abandoned after the sale is complete. Some closed roads will have to be reopened to access the area. Both temporary and reopened roads will enter RHCAs and stream crossings will occur. Map III-9 of the BA shows the location of thinning units and proposed road construction.

#### Herbicide Application.

The UNF plans to spot apply herbicides by hand with backpack sprayers on 1,740 acres of areas that have been planted with conifer seedlings. Hexazinone, Triclopyr, and Glyphosate will be used to reduce competition with conifer seedlings from ferns, grasses and shrubs. In areas to be treated with herbicides, an 18 by 18 inch square scalp will be created around each seedling with hand tools. The herbicide would be applied in a 1.5 foot band outside the scalp area. No herbicide use will occur in RHCAs. No spraying will occur when rain is expected for 24 hours. Map III-11 of the BA shows the location of the proposed herbicide treatments.

### **1.3 Biological Information**

The MCR steelhead evolutionarily significant unit (ESU) was listed as threatened under the ESA by NOAA Fisheries on March 25, 1999 (64 FR 14517). Protective regulations for MCR steelhead were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42422). Biological information concerning the MCR steelhead is found in Busby *et al.* (1996). The current status of the MCR steelhead, based upon their risk of extinction, has not significantly improved since the species was listed.

Streams within the NFJDR subbasin provides rearing and spawning habitat for both adult and juvenile life stages of MCR steelhead. Adult MCR steelhead enter the Columbia River beginning in the spring and migrate upriver through the summer, fall, and winter, seeking their tributary of origin. By early the next spring the adults have reached their natal streams and spawn in gravel redds/nests from March to early June. Deposited eggs usually hatch by July of the same year. The resulting juveniles will spend from one to four years rearing to smolt size at which time they will begin their migration to the ocean.

Essential features of the adult spawning, juvenile rearing, and adult and migratory habitat for this species are: Substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food (juvenile only), riparian vegetation, space, and safe passage conditions. (Bjornn and Reiser, 1991; NOAA Fisheries, 1996b; Spence *et al.*, 1996). The essential features that the proposed project may affect are: Substrate, water quality, water temperature, water velocity, cover/shelter, food, and riparian vegetation.

Trend data for MCR steelhead in the NFJDR show a decline in the MCR steelhead population. Busby *et al.* (1999) noted a short-term decline of -1.2% and a long-term decline of -2.5%, and also noted that the overall decline of MCR steelhead in the John Day basin is of particular concern because the basin has historically supported the largest population of native, naturally-spawning summer steelhead in the MCR ESU. The current population status and trends for MCR steelhead are described in Busby *et al.* (1996), NOAA Fisheries (1997), and NOAA Fisheries (1999b). Busby (1996), citing ODFW data, stated that the total MCR steelhead run size for the John Day River basin has recently averaged about 5,000 fish. NOAA Fisheries (1997) citing Chilcote (1997) states that recent MCR steelhead redd counts conducted in established index areas throughout the John Day River basin suggest universal declines in redd abundance ranging from -0.9 to -5.6% over the past several years. NOAA Fisheries (1999b) updated the estimate of total summer steelhead run size in the John Day River basin to 10,000 fish through 1994. Annually declining trends of -1.2% in the short-term and -2.5% in the long-term were noted for MCR steelhead in the NFJDR (NOAA Fisheries, 1999b).

#### **1.4 Evaluating Proposed Action**

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NOAA Fisheries must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of defining the biological requirements and current status of the listed species; and evaluating the relevance of the environmental baseline to the species' current status. Subsequently, NOAA Fisheries evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NOAA Fisheries must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action, (2) the environmental baseline, and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmonid's life stages that occur beyond the action area. If NOAA

Fisheries finds that the action is likely to jeopardize, NOAA Fisheries must identify reasonable and prudent alternatives for the action. Furthermore, NOAA Fisheries evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat and NOAA Fisheries must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. NOAA Fisheries identifies those effects of the action that impair the function of any essential element of critical habitat. NOAA Fisheries then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NOAA Fisheries concludes that the action will destroy or adversely modify critical habitat it must identify any reasonable and prudent alternatives available.

For the proposed action, NOAA Fisheries' jeopardy analysis considers direct or indirect mortality of fish attributable to the action.

#### **1.4.1 Biological Requirements**

The first step in the methods the NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed MCR steelhead is to define the species' biological requirements that are most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list MCR steelhead for ESA protection and also considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for MCR steelhead to survive and recover to naturally-reproducing population levels at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment. For this consultation, the biological requirements are improved habitat characteristics that function to support successful adult and juvenile migration, spawning and rearing.

MCR steelhead survival in the wild depends on the proper functioning of certain ecosystem processes including habitat formation and maintenance. The restoration of improperly functioning habitat to a more properly functioning condition will likely lead to improved survival and recovery of MCR steelhead. In conducting analyses of habitat altering actions, NOAA Fisheries defines the biological requirements in terms of a concept called Properly Functioning Condition (PFC) and applies a "habitat" approach to its analysis (NOAA Fisheries 1999). The current status of MCR steelhead, based on their risk of extinction, has not improved much since the species was listed

### 1.4.2 Environmental Baseline

The current range-wide status of the MCR steelhead is found in Busby *et al.* (1995, 1996). The identified action will occur within the range of MCR steelhead. The defined action area is the area that is directly and indirectly affected by the proposed action. The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, stream hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect effects may occur throughout the watershed, where actions described in this Opinion lead to additional activities, or affect ecological functions, contributing to stream degradation. As such, the action area for the proposed activities include the immediate portions of the watershed containing the project and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term, by the proposed project. For this project, the action area would be the analysis area of the TERP EIS. This area encompasses all of the acres of the UNF burned by the Tower Fire and is entirely within the NFJD subbasin. Four watersheds are included in this area: Cable Creek, NFJDR, Big Creek, and Hidaway Creek.

Environmental baseline conditions within the action area were evaluated for the subject actions at the project level and watershed scales. The results of this evaluation, based on the “Matrix of Pathways and Indicators” (MPI) described in *Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NOAA Fisheries 1996a), follow. This method assesses the current condition of instream, riparian, and watershed factors that collectively provide properly functioning aquatic habitat essential for the survival and recovery of the species. The environmental baseline conditions for Cable Creek, NFJDR, Big Creek, and Hidaway Creek watersheds as well as the NFJDR subbasin as a whole, are presented in Table 1.

The John Day River system is un-dammed and contains runs of relatively genetically pure anadromous fish including MCR steelhead. Fish populations have declined significantly over the past 100 years, but the NFJDR subbasin sustains one of the few remaining wild anadromous fish runs in the Mid-Columbia River Basin and is the most important subbasin in the John Day Basin in terms of water quality and flow contribution. Much of the NFJDR subbasin is located within the UNF, and the continuing health of this system is dependent on the health of upland forest communities in the UNF. Factors such as percent forest canopy, soil type, slope, elevation, and land use practices influence the amount and quality of water enters the subbasin.

**Table 1.** Environmental Baseline Conditions in NFJDR subbasin and watersheds containing activities proposed as part of the Tower Fire Rehabilitation Project

MPI Parameters <sup>1</sup>		NFJDR Subbasin	Watersheds			
			NFJD River	Cable Creek	Hida-way Creek	Big Creek
Water Quality	Temperature	N	N	N	N	N
	Sediment	R	R	U	U	U
	Chem/Cont.	A	A	A	A	A
Access	Physical barriers	A	R	A	A	A
Habitat Elements	Substrate Embeddedness	R	R	R	A	U
	Large Woody Debris	R	N	A	A	U
	Pool Freq./Quality	R	N	R	R	A
	Large Pools	A	A	A	A	A
	Off Channel Habitat	A	A	A	A	U
	Refugia	R	U	U	U	U
Channel Conditions & Dynamics	Width/depth ratios	R	A	A	A	U
	Streambank Condition	R	R	A	U	R
	Floodplain connectivity	R	R	U	A	U
Flow/ Hydrology	Change in Peak Base Flow	R	U	R	U	U
	Drainage Network Increase	R	R	A	R	A
Watershed Condition	Road Density and Location	N	R	R	N	A
	Disturbance History	A	R	A	A	A
	RHCAs	R	A	R	R	A
<sup>1</sup> The condition of each MPI parameter is indicated in the following manner: A= functioning appropriately, R= functioning at risk, N= not properly functioning, U= data unavailable						

Natural disturbances are common in this area and include floods, fires, avalanches, and insect epidemics. Human caused physical disturbances are also widespread and include extensive mining, timber harvest, grazing, and water diversions. Streams in the upper NFJDR system generally have good channel structure, riparian and instream cover, as well as good water quantity and quality. This area provides approximately 700 miles of steelhead habitat. However, steelhead production in the subbasin has decreased considerably. Causes for the decline include increased sediment loads due to roads, road building, other soil disturbing activities, and decreased instream flows resulting from water diversions. Loss of shade due to removal of riparian vegetation has led to summer instream water temperatures no longer suitable for steelhead rearing. Several streams in the subbasin were listed in 1998 under the Clean Water Act's section 303(d) list for Oregon of stream segments with limited water quality. Big Creek, Cable Creek, Hidaway Creek, and the NFJDR have been listed for having summer temperatures in excess of rearing temperatures suitable for salmonids. Portions of Cable Creek and Hidaway Creek have degraded habitat, primarily a lack of pools and large woody debris.

The Tower Fire further degraded the stream conditions in the area. Small organic matter, some large instream woody debris and riparian vegetation were consumed by the fire. In areas of intense burning, fish and aquatic macroinvertebrates were killed by the extreme water temperatures generated by the fire. In the period shortly after the fire, large amounts of fine sediments in the form of ash and soil were washed into the stream during storm events. The Burned Area Emergency Rehabilitation seeding has reduced overland erosion to some degree, however some areas still require additional planting and seeding to reduce sediment loads to streams. Some of the instream habitat improvement structures in the area are no longer functioning properly and are in need of repair. A low water crossing on Oriental Creek was severely damaged by the fire and the subsequent debris torrent which occurred in the creek. This area was used extensively by the public and replacement of this crossing has been made a priority by the UNF.

## **1.5 Analysis of Effects**

### **1.5.1 Effects of Proposed Action**

The effects determination in this Opinion was made using a method for evaluating current aquatic conditions, the environmental baseline, and predicting effects of actions on them. This process is described in *Making Endangered Species Act determinations of effect for individual and grouped actions at the watershed scale* (NOAA Fisheries 1996). The effects of actions are expressed in terms of the expected effect (restore, maintain, or degrade) on aquatic habitat factors in the action area.

#### Concurrence on NLAA Activities.

The purpose of the proposed action, as described in section 1.2 of this Opinion is to enhance the long-term recovery of resources impacted by the Tower Fire, and prevent future catastrophic wildfires. NOAA Fisheries concurs with the UNF's determination of NLAA MCR steelhead for the following activities: (1) Planting projects, (2) hazard tree removal, (3) non-commercial

thinning and fencing activities, (4) road obliteration/decommissioning, (5) soil compaction reduction, (6) big game forage enhancement, (7) recreation site rehabilitation, and (8) herbicide application. A brief explanation of the reasons for NOAA Fisheries concurrence follows.

Many of the planting projects occur in riparian areas and will provide several beneficial effects to fish habitat. The recovery of a healthy riparian plant community will provide shade and thus reduce stream temperatures, increase recruitment of woody debris in the future, and provide bank stability. Leaves, needles, and woody debris from riparian plants will provide an important food source for aquatic invertebrates, an essential source of prey for juvenile steelhead. A very small amount of sediment generated from planting in riparian areas may enter streams, but it would not be sufficient to create detrimental effects to MCR steelhead or their habitat. Reforestation and planting to provide slope stabilization in upland areas will reduce the possibility of sediment from overland erosion or rill entering streams. Sediment generated from these activities is not expected to enter streams. Planting activities outside RHCAs are expected to have no effect on MCR steelhead.

The removal of hazard trees in RHCAs may result in some loss of stream shade, but the trees cut will be left on site and could provide large woody debris to the stream in the future and also assist in catching overland sediment flows. The number of hazard trees to be removed in RHCAs is very minimal and a measurable decrease in stream shade is not expected.

Fencing activities may generate a very small amount of sediment that may reach streams. Compaction of soils may occur due to the use of ATVs used to transport materials to the fencing sites, but both of these effects are expected to be very minimal. If stream crossings are necessary for this activity, a fish biologist for the UNF will designate crossing areas that will minimize impacts to rearing juvenile steelhead. Crossing sites will occur in shallow riffle areas where MCR steelhead juveniles will not be present. Crossing sites will also avoid areas where bank damage could result from vehicle crossings. By excluding livestock from the meadows and stream, the fencing will facilitate recovery of meadow vegetation and streambank condition. Other ground disturbing activities, such as soil compaction reduction and road obliteration will occur outside of RHCAs and the vegetative buffer provided by the RHCA will be sufficient to prevent sediment from entering streams

Herbicide application has the potential to result in both direct and indirect negative impacts to MCR steelhead. Triclophyr is slightly bioconcentrated, and is moderately to highly toxic to fish. If this herbicide was to reach streams in the action area, fish could be killed or suffer an array of sublethal negative effects such as reduced growth (Little *et al.* 1990). Glyphosate has low toxicity and the surfactant to be used with Glyphosate in this project also has low toxicity to salmonids. Hexazinone is practically non-toxic to fish (Norris *et al.* 1991), and even in the event of a spill directly into water is not likely to produce direct toxic effects. The application (by hand with back sprayers) of these herbicides will not occur in RHCAs. The application will occur in upland areas with a substantial vegetative buffer occurring between the application area and streams. The recovery of vegetation in the areas to receive herbicide application after the fire has been excellent, with large amounts of grasses, shrubs and lodgepole pine now growing



(K. Ramsey, UNF, pers. com.). It is unlikely that herbicides used in this project will ever reach stream courses. Due to the method of application, leaching from soil and transport of herbicides via overland flow are the only ways, other than an accidental spill, in which these compounds could reach streams. Norris (1991), states that leaching from soil and transport via overland flow are not important processes for transporting applied phenoxy herbicides to streams. In addition, limiting spraying to times when rain is not expected for at least 24 hours, will decrease the chance of overland flow of these herbicides occurring. Movement of these compounds in the soil is relatively low. The compounds are rapidly degraded by microorganisms and infiltration rates of the forest floor are usually sufficient to prevent overland flow. These factors in conjunction with the vegetative buffer provided by vegetation in the RCHAs, should be sufficient to ensure the applied herbicides will not reach streams.

Prescribed burning to enhance big game forage is not expected to have adverse impacts to MCR steelhead or their habitat. Ignition of the fire will not occur in RHCAs and if fire backs into these areas, the vegetation is expected to experience limited burning due to its high moisture content. Bare soil exposure in RHCAs is expected to be very minimal and no measurable decrease in stream shading due to loss of overstory vegetation is expected.

#### Non-concurrence.

NOAA Fisheries does not concur with the NLAA determination for the commercial harvest of timber and the fuel reduction and salvage harvest, and has determined that the commercial harvest of timber and the fuel reduction and salvage harvest activities are LAA MCR steelhead.

Temporary road building in RHCAs and stream crossings required for the commercial and salvage timber harvest will result in additional sediment inputs to streams resulting in both direct effects to MCR steelhead and potentially detrimental effects to their habitat. According to the BA, the action area already has relatively high road densities (Cable Creek watershed, 1.8 miles per square mile; Camp Creek, 1.6 miles per square mile; Hidaway Creek watershed, 2.8 miles per square mile; NFJDR watershed, 1.1 miles per square mile) especially in RHCAs. Portions of these watersheds are located in roadless and wilderness areas and road densities outside of these portions of the watersheds is closer to or exceeds 3.0 miles per square mile. The NFJDR subbasin, as a whole, has been rated as “functioning at risk” for this aquatic habitat indicator.

The streams that require crossings or temporary road in RHCAs will have little or no flow at the time they will be used for the timber operations, so sediment inputs are expected to be minimal during the actual use of the streams and crossings. However, the roads will be in place for 2-3 years, and will contribute sediment during spring and fall rain events and snow melt periods. In addition, public use of roads, at a minimum, OHV travel, will likely occur during the period temporary roads are in place. Roads also alter the hydrology of the surrounding area and can concentrate run-off, further increasing sediment delivery. Soil compaction resulting from the construction of these roads can prevent establishment of riparian vegetation and decrease water infiltration rates. The soil disturbance required for road construction can also facilitate the establishment of noxious weeds, resulting in improperly functioning riparian plant communities. Due to the adverse habitat effects resulting from these roads and stream crossings, short term negative effects are expected to occur to MCR steelhead.

### Effects of LAA Activities

The other activities determined by the UNF to be LAA for MCR steelhead will result in increased sediment inputs. These projects include the fish habitat improvement, Roundaway OHV Trail (specifically bridge replacements), slope stabilization, and road repair. In the short-term, a temporary increase in sediment and turbidity could reduce light penetration and inhibit primary production, abrade and clog fish gills, prevent foraging of sight feeding juvenile steelhead, and cause fish to avoid disturbed areas of the stream. These temporary sediment pulses will be brief, lasting a few days for each of these activities. Activities that require instream work such as the fish habitat improvements, and would most likely produce the greatest amount of sediment will be completed during the ODFW in-water work window for the area (July 15th - August 15). By conducting instream work during this time, impacts to spawning fish, eggs and pre-emergent alevins will be avoided. Stream flow will be low at this time, minimizing the amount of sediment generated, mobilized, and carried downstream by the proposed activities. In the long term, many of these projects such as slope stabilization and road obliteration will result in decreased sediment inputs to streams in the area. In addition to sediment concerns, the use of heavy machinery in or near streams may result in leaking or spilling of toxic lubricants and fuels. These substances are highly toxic to aquatic life, and can cause death or injury to fish, as well as adverse sublethal effects to salmonids (Arkoosh et al. 1991). In-water work may inhibit fish passage for short periods (typically less than one week), but because of the small size of the areas affected, no need for substantial work area isolation is anticipated. Juvenile fish will be able to avoid these areas and will not be captured and released in a fish salvage operation.

Sediment entering streams could potentially result in indirect effects, such as additional substrate embeddedness and degradation of MCR steelhead spawning habitat. Studies have shown that sediment inputs resulting in substrate embeddedness of greater than one third can result in a significant decrease in benthic invertebrate abundance and thus a decrease in food available for juvenile salmonids (Waters 1995). However, due to the limited scale of the proposed activities, sediment is not expected to be mobilized in quantities that would cause these effects. The increases in sediment input and turbidity are expected to be temporary and will drop to background levels after the proposed actions have been completed. All of these projects are designed to address chronic sediment problems and in the long term, these projects will result in a decrease in sediment input to local streams.

Direct effects to MCR steelhead are likely to occur from projects requiring instream work. Any project requiring heavy machinery to operate in stream channels could result in death or injury to MCR steelhead. Instream work could also result in harassment of juvenile steelhead as these actions could interrupt daily activities such as feeding and sheltering and create turbidity as described above. Once these juvenile fish are frightened from cover and swim into open water, they become more susceptible to predation from larger fish and avian predators.

### **1.5.2 Cumulative Effects**

“Cumulative effects” are defined in 50 CFR 402.02 as those effects of “future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation. The “action area” is defined as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action” (50 CFR 402.02). The “action area” for this consultation is the area burned by the Tower Fire as well as any additional areas affected by the rehabilitation projects described in this Opinion. This area encompasses most of the following watersheds located in the John Day Basin: Cable Creek, NFJDR, Big Creek, and Hidaway Creek.

The UNF has identified livestock grazing on private and state land in the action area as a significant source of detrimental effects to steelhead habitat. There are also some water withdrawals from Cable Creek, North Fork of Cable Creek, and Hidaway Creek associated with the livestock grazing operations.

Significant improvement in MCR steelhead reproductive success outside of Federally-administered land is unlikely without changes in grazing, agricultural, and other practices occurring within these non-Federal riparian areas in the John Day River basin. NOAA Fisheries is not aware of any other specific future actions which are reasonably certain to occur on non-Federal lands.

## **1.6 Conclusion**

NOAA Fisheries has determined that, when the effects of the subject actions addressed in this Opinion are added to the environmental baseline and cumulative effects occurring in the action area, they are not likely to jeopardize the continued existence of MCR steelhead. NOAA Fisheries believes that the proposed actions will cause some short-term increases in stream turbidity and sedimentation rates in watersheds located in the action area. It is also possible that some direct mortality and harassment of juvenile steelhead may result from the instream work and crossing of streams by vehicles and heavy machinery and temporary road building in RHCAs. Because of the protective measures planned for these activities and included in the BA, the amount of take is expected to be minimal. These conclusions were reached primarily because the actions: (1) Are expected to reduce chronic sediment inputs in the long term, (2) improve fish habitat, and (3) improve the condition of riparian vegetation, stream shading, and streambank stability, aquatic habitat indicators such as water temperature, sediment, substrate embeddedness, width/depth ratio, and streambank stability in the long term in the watersheds located in the action area. Thus, the proposed action is not expected to impair currently properly functioning habitats, appreciably reduce the functioning of already impaired habitats, or retard the long-term progress of impaired habitats toward proper functioning condition essential to the long-term survival and recovery at the population or ESU scale.

## **1.7 Conservation Recommendations**

Section 7 (a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and

endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of proposed actions on listed species, to minimize or avoid adverse modification of critical habitat, or to develop additional information. NOAA Fisheries believes that the following conservation recommendation regarding the TERP should be implemented:

The public use of temporary and re-opened abandoned roads associated with the timber sale activities should be discouraged and prevented wherever possible. The UNF should install barricades and signs indicating these roads are not for public use. This will help avoid a situation in which the use of these roads becomes a habit to forest visitors and thereby difficult to fully obliterated or close when they are no longer needed.

In order for NOAA Fisheries to be kept informed of actions minimizing or avoiding adverse effects, or those that benefit listed salmon and steelhead or their habitats, we request notification of the achievement of any conservation recommendations when the UNF submits its annual report describing achievements of the fish monitoring program during the previous year.

## **1.8 Reinitiation of Consultation**

Reinitiation of consultation is required if: (1) The action is modified in a way that causes an effect on the listed species that was not previously considered in the BA and this Opinion, (2) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered, (3) a new species is listed or critical habitat is designated that may be affected by the action, or (4) if the amount or extent of take specified in the incidental take statement is exceeded or expected to be exceeded. (50 CFR. 402.16). The UNF may also be required to reinitiate consultation if the proposed actions are not consistent with conservation measures developed through the pending consultation on land and resource management plans for Federal land management units in the Middle and Upper Columbia River Basins.

## **2. INCIDENTAL TAKE STATEMENT**

Section 9 and rules promulgated under section 4(d) of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. “Harm” is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. “Harass” is defined as actions that create the likelihood of injuring listed species by annoying it to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. “Incidental take” is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental

to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

## **2.1 Amount or Extent of the Take**

NOAA Fisheries anticipates that the proposed actions are reasonably certain to result in incidental take of species listed in this Opinion because of detrimental effects from increased sediment levels (non-lethal), increased pollutant levels (potentially lethal), and limited riparian habitat disturbance (non-lethal). The commercial timber harvest, fuels reduction and salvage harvest, fish habitat improvement, road repair, Roundaway OHV trail bridge replacements, and slope stabilization are expected to cause the abovementioned adverse impacts as described in section 1.5.1 of this Opinion. It is also likely that some incidental take may result from the instream work and vehicle and machinery crossing streams (lethal), although this is expected to be minimal.

Effects of actions such as minor sedimentation and minor riparian disturbance are unquantifiable in the short term and are not expected to be measurable as long-term harm to habitat features or by long-term harm to salmonid behavior or population levels. Therefore, even though NOAA Fisheries expects some low level incidental take to occur due to the proposed actions covered by this Opinion, best scientific and commercial data available are not sufficient to enable NOAA Fisheries to estimate the specific amount of incidental take to the species itself. In instances such as these, NOAA Fisheries designates the expected level of take as “unquantifiable.” Based on the information in the biological assessment, NOAA Fisheries anticipates that an unquantifiable amount of incidental take could occur as a result of the habitat altering actions covered by the Opinion. The extent of the take includes the aquatic and associated riparian habitats affected by the culvert replacement and stream crossing improvement extending upstream to the edge of disturbance, and downstream 300 feet.

## **2.2 Effect of Take**

In this Opinion, NOAA Fisheries determines that this level of anticipated take is not likely to result in jeopardy to MCR steelhead.

## **2.3 Reasonable and Prudent Measures**

NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of the above species. Minimizing the amount and extent of take is essential to avoid jeopardy to the listed species. The UNF shall:

1. Minimize the likelihood of incidental take resulting from activities proposed in the Tower Fire Rehabilitation Projects including fish habitat improvement, slope stabilization, road repair and associated activities by implementing these projects such that the adverse effects of heavy equipment and in-channel disturbance on spawning adult MCR steelhead, steelhead eggs, pre-emergent fry, and rearing juveniles are avoided or minimized.
2. Minimize the likelihood of incidental take resulting from construction activities in or near watercourses by ensuring that an effective spill prevention, containment, and control plan is developed, implemented, and maintained to avoid or minimize point-source pollution both into and within watercourses over the short term and the long term.
3. Minimize the likelihood of incidental take resulting from vegetation management activities including salvage harvest and commercial thinning described in this Opinion by implementing these activities such that adverse effects on key components of MCR steelhead habitat are avoided or minimized.
4. Complete a comprehensive monitoring and reporting program to ensure implementation of requirements found in this Opinion.

## **2.4 Terms and Conditions**

To be exempt from the prohibitions of section 9 of the ESA, The UNF must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To implement Reasonable and Prudent Measure #1 (heavy equipment and in-channel disturbance), the UNF shall ensure that:
  - a. Minimum area. Construction impacts will be confined to the minimum area necessary to complete the project.
  - b. In-water work. All work within the active channel that could contribute sediment or toxicants downstream will be completed within the ODFW approved in-water work period (July 15 - August 15). Work will be completed from the bank to minimize disturbance of the stream bottom whenever possible.
  - c. Work period extensions. Extensions of the in-water work period, including those for work outside the wetted perimeter of the stream but below the ordinary high water mark, must be approved by biologists from NOAA Fisheries.
  - d. Fish passage. Work will not inhibit passage of any adult or juvenile salmonid species throughout the construction period or after project completion, although isolation of in-water work area, if necessary, may result in a short-term blockage of fish passage (*e.g.* one week). All culvert and road designs must comply with ODFW guidelines and criteria for stream-road crossings (ODFW 1999) with appropriate grade controls to prevent culvert failure due to changes in stream

- elevation. Channel modifications which could adversely affect fish passage, including through increasing water velocities, are not authorized by this Opinion.
- e. Temporary access roads. Temporary access roads are designed as follows:
- i. The number of stream crossings will be minimized.
  - ii. Existing roadways or travel paths will be used whenever reasonable.
  - iii. Where stream crossings are essential, a survey must determine and map any potential spawning habitat within 1,000 feet upstream and downstream.
  - iv. No stream crossings will occur at known or suspected spawning areas or within 300 feet upstream of such areas where impacts to spawning areas may occur.
  - v. Where stream crossings are essential, the crossing design will accommodate reasonably foreseeable risks (*e.g.*, flooding and associated bedload and debris) to prevent diversion of streamflow out of the channel and down the road in the event of crossing failure.
  - vi. Vehicles and machinery must cross riparian areas and streams at right angles to the main channel wherever reasonable.
  - vii. Temporary roads or paths to provide access to the inchannel treatment or stream crossing improvement work sites within 150 feet of streams will avoid, minimize and mitigate soil disturbance to the greatest degree possible. Whenever possible, soil compaction and riparian disturbance will be avoided.
- f. Cessation of work. All project operations, except efforts to minimize storm or high flow erosion, will cease under high flow conditions that may result in inundation of the project area.
- g. Pre-construction activities. Before significant alteration of the action area, the following actions will be accomplished.
- i. Boundaries of the clearing limits associated with site access and construction are flagged to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.
  - ii. The following erosion control materials will be onsite.
    - (1) A supply of erosion control materials (*e.g.*, silt fence and straw bales) must be on hand to respond to sediment emergencies. Weed free straw or hay bales will be used when available to prevent introduction of weeds.
    - (2) An oil absorbing, floating boom is available on-site during all phases of construction whenever surface water is present.
  - iii. All temporary erosion controls (*e.g.*, straw bales, silt fences) are in-place and appropriately installed downslope of project activities within the riparian area prior to and during all project activities. Effective erosion control measures will be in-place whenever possible during the proposed activities, and will remain and be maintained until permanent erosion control measures are effective.

- h. Heavy Equipment. Heavy equipment use will be restricted as follows:
  - i. When heavy equipment is required, the UNF will use equipment having the least impact.
  - ii. Excavators will have properly guarded belly pan for pioneering type of work in rough terrain.
  - iii. Heavy equipment will be fueled, maintained and stored as follows.
    - (1) All equipment that is used for instream work will be cleaned before operations below the bankfull elevation. External oil and grease will be removed, along with dirt and mud. No untreated wash and rinse water will be discharged into streams and rivers without adequate treatment.
    - (2) Vehicle maintenance, refueling, and fuel storage areas will be located outside RHCAs.
    - (3) All vehicles operated within RHCAs of any stream or water body will be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected will be repaired before the vehicle resumes operation.
    - (4) When not in use, vehicles will be stored in the vehicle staging area outside of RHCAs. If relocating heavy equipment to staging areas daily will create additional riparian disturbance, staging in RHCAs can occur.
- i. Site preparation. Site preparation is completed in the following manner, including removal of stream materials, topsoil, surface vegetation and major root systems.
  - i. Any instream large wood or riparian vegetation moved or altered during construction will stay on the site or be replaced with a functional equivalent.
  - ii. Tree or riparian shrub removal occurring at in-channel treatment and stream crossing improvement work sites will be mitigated for onsite by a 2:1 replanting ratio.
  - iii. Whenever the project area is to be revegetated or restored, native channel material, topsoil and native vegetation removed for the project should be stockpiled for redistribution on the project area.
  - iv. Vegetation removal will occur by hand where ever practical, leaving rootwads intact and cutting vegetation at ground level to promote resprouting where ever practical.
- j. Earthwork. Earthwork, including drilling, blasting, excavation, dredging, filling and compacting, associated with the in-channel treatment and stream crossing improvement work is completed in the following manner:
  - i. Additional boulders, rock, woody materials and other natural construction materials used for the fish habitat improvements or stream crossing improvements must be obtained from outside the riparian area.



- ii. Channel material and top soil that cannot be used for restoration efforts will be placed in an upland location where it cannot enter streams or other water bodies.
- iii. All exposed or disturbed areas will be stabilized to prevent erosion and replanted with native vegetation.
  - (1) Areas of bare soil within 150 feet of waterways, wetlands or other sensitive areas will be stabilized by native seeding,<sup>2</sup> mulching, and placement of erosion control blankets and mats, if applicable, as quickly after exposure as possible..
  - (2) All other areas will be stabilized quickly as reasonable, but within 14 days of exposure.
  - (3) Seeding outside the growing season will not be considered adequate nor permanent stabilization.
- iv. All erosion control devices will be inspected during construction to ensure that they are working adequately.
  - (1) Erosion control devices will be routinely inspected to ensure proper function.
  - (2) If inspection shows that the erosion controls are ineffective, work crews will be mobilized immediately, to make repairs, install replacements, or install additional controls as necessary.
- v. If soil erosion and sediment resulting from construction activities is not effectively controlled work will cease until protective measures can be implemented. The engineer will limit the amount of disturbed area to that which can be adequately controlled.
- vi. Sediment will be removed from sediment controls once it has reached 1/3 of the exposed height of the control. Whenever straw bales are used, they will be staked and dug into the ground 5 inches (12 cm). Catch basins will be maintained so that no more than 6 inches (15 cm) of sediment depth accumulates within traps or sumps.
- k. Site restoration. Site restoration and cleanup, including protection of bare earth by seeding, planting, mulching and fertilizing, is done in the following manner.
  - i. All areas damaged by the construction activities will be restored to pre-work conditions including restoration of original streambank lines, and contours, except for the proposed channel reroute on Texas Bar Creek.
  - ii. All exposed soil surfaces, including construction access roads and associated staging areas, will be stabilized at finished grade with native herbaceous seeding, and native woody vegetation as soon as possible during the appropriate planting season( immediately for seeding and the following fall or spring for woody plantings). On cut slopes steeper than 1:2, a tackified seed mulch will be used so that the seed does not wash

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<sup>2</sup> By Executive Order 13112 (February 3, 1999), Federal agencies are not authorized to permit, fund or carry out actions that are likely to cause, or promote, the introduction or spread of invasive species. Therefore, only native vegetation that is indigenous to the project vicinity, or the region of the state where the project is located, shall be used.

- away before germination and rooting occurs. In steep locations, consider using hydro-mulch applied at 1.5 times the normal rate.
- iii. Disturbed areas will be planted with native vegetation specific to the project vicinity or the region where the project occurs, and will comprise a diverse assemblage of woody and herbaceous species.
  - iv. Plantings will be arranged randomly within the revegetation area.
  - v. All plantings will be completed before July 1 of the following year.
  - vi. No herbicide application will occur within RHCAs as part of this permitted action. Mechanical removal of undesired vegetation and root nodes is permitted.
  - vii. No surface application of fertilizer will be used within 50 feet of any stream channel as part of this permitted action.
  - viii. Plantings in areas disturbed by construction activities will achieve an 80% survival success after three years.
    - (1) If success standard has not been achieved after three years, the UNF will develop an alternative plan, address temporal loss of function and remedy the issue.
    - (2) Plant establishment monitoring will continue and plans will be submitted to NOAA Fisheries until site restoration success has been achieved.
1. UNF personnel. A UNF aquatic specialist will be on-site for all inchannel treatment and stream crossing improvement work and related monitoring activities to ensure that these terms and conditions are met.
  2. To implement reasonable and prudent measure #2 (spill prevention, containment, and control), the UNF shall ensure that a pollution and erosion control plan (PECP) will be developed for each authorized project to prevent point-source pollution related to construction operations. The PECP will contain the pertinent elements listed below, and meet requirements of all applicable laws and regulations.
    - a. Methods that will be used to prevent erosion and sedimentation associated with access roads, stream crossings, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations and staging areas.
    - b. Methods that will be used to confine and remove and dispose of excess concrete, cement and other mortars or bonding agents, including measures for washout facilities.
    - c. A description of the hazardous products or materials that will be used, including inventory, storage, handling, and monitoring.
    - d. A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures that will be available on site, proposed methods for disposal of spilled materials, and employee training for spill containment.
    - e. Measures that will be taken to prevent construction debris from falling into any aquatic habitat. Any material that falls into a stream during construction

operations will be removed in a manner that has a minimum impact on the streambed and water quality.

3. To implement reasonable and prudent measure #3 (vegetation management), the UNF shall:
  - a. Forwarder trails. Only designated or existing forwarder trails will be used for heavy equipment operations. Where forwarder trails have to cross PACFISH category IV streams, slash will be used protect the streambed. If trees in RHCAs need to be cut to allow passage of heavy equipment, they will be left on site. Forwarder trails crossing RHCAs will be reclaimed and revegetated the following fall after trail use. The UNF timber sale administrator will coordinate with an aquatic specialist during supervision of this activity.
  - b. Temporary roads. All temporary roads will be obliterated as soon as they are no longer needed. Sediment control measures such as silt fences and straw bales will be used as necessary to prevent sediment generated from construction, use, and obliteration of these roads from entering streams.
  - c. Abandoned roads. All abandoned roads will be closed as soon as they are no longer needed. Sediment control measures such as silt fences and straw bales will be used as necessary to prevent sediment generated from use and obliteration of these roads from entering streams.
4. To implement Reasonable and Prudent Measure #4 (monitoring and reporting), the UNF shall submit a report by March 1 of the following year to the NOAA Fisheries describing the previous years activities related to this project. In addition, this information should be added to the Interagency Implementation Team (IIT) database. This report will consist of the following information:
  - a. Project identification.
    - i. LAA project name (Roundaway, road repair, fish habitat improvement projects, slope stabilization, salvage and commercial thinning);
    - ii. LAA project location by 5<sup>th</sup> field hydrological unit code (HUC) and latilong;
    - iii. starting and ending dates for work completed; and
    - iv. the UNF contact person.
  - b. Pollution and erosion control. A summary of all pollution and erosion control inspection reports, including descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials.
  - c. Site restoration. Summary of the following conditions:
    - i. Inwater work summary.
    - ii. Planting composition and density.
    - iii. A Summary of planting and seeding efforts.
    - iv. A narrative assessment of the project's effects on natural stream function.
  - d. Temporary Road obliteration. Report the dates when temporary roads are obliterated.

- e. The annual report will be submitted to:  
Branch Chief - Portland  
National Marine Fisheries Service  
Attn: OSB2001-0193-IEC  
525 NE Oregon Street, Suite 500  
Portland, OR 97232
- f. NOTICE. If a dead, injured, or sick endangered or threatened species specimen is found, initial notification must be made to the NOAA Fisheries Law Enforcement Office, at Vancouver Field Office, 600 Maritime, Suite 130, Vancouver, Washington 98661; phone: 360/418-4246. Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. Besides the care of sick or injured endangered and threatened species, or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence with the specimen is not unnecessarily disturbed.

### **3. ESSENTIAL FISH HABITAT**

#### **3.1 Background**

The objective of the essential fish habitat (EFH) consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

#### **3.2 Magnuson-Stevens Fishery Conservation and Management Act**

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of EFH: “Waters” include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; “substrate” includes sediment, hard bottom, structures underlying the waters, and associated biological communities; “necessary” means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and “spawning, breeding, feeding, or growth to maturity” covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NOAA Fisheries shall provide conservation recommendations for any Federal or state activity that may adversely affect EFH;
- Federal agencies shall within 30 days after receiving conservation recommendations from NOAA Fisheries provide a detailed response in writing to NOAA Fisheries regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the Federal agency shall explain its reason for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NOAA Fisheries is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

### **3.3 Identification of EFH**

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: Chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the *Pacific Coast Salmon Plan* (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

### **3.4 Proposed Actions**

The proposed action is detailed above in section 1.2 of the ESA portion of this Opinion. The action area includes Cable Creek, North Fork John Day, Big Creek, and Hidaway Creek watersheds. This area has been designated as EFH for various life stages of chinook salmon.

### **3.5 Effects of Proposed Action**

As described in detail in the ESA portion of this consultation, the proposed activities would result in detrimental, short-term, adverse effects to a variety of habitat parameters.

### **3.6 Conclusion**

NOAA Fisheries believes that the proposed action would adversely affect the EFH for chinook salmon.

### **3.7 EFH Conservation Recommendations**

Pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NOAA Fisheries is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. In addition to conservation measures proposed for the project by the UNF, all of the reasonable and prudent measures and the terms and conditions contained in section 2.4 of the ESA portion of this Opinion are applicable to salmon EFH. Therefore, NOAA Fisheries incorporates each of those measures here as EFH conservation recommendations.

### **3.8 Statutory Response Requirement**

The Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the UNF to provide a written response to NOAA Fisheries' EFH conservation recommendations within 30 days of its receipt of this letter. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. If the response is inconsistent with NOAA Fisheries' conservation recommendations, the reasons for not implementing the UNF shall explain its reasons for not following the recommendations.

### **3.9 Supplemental Consultation**

The UNF must reinitiate EFH consultation with NOAA Fisheries if either the action is substantially revised or new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920).

#### 4. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this Opinion in addition to the BA and additional information requested by NOAA Fisheries and provided by the UNF.

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